TEKTONIKA

Use of Artificial Intelligence in Academic Research: What Is Acceptable and What Is Not?

Robin Lacassin [*1,A], **Tony Doré**[A], **Mohamed Gouiza** [2,B], **Craig Magee** [2,A], **J. Kim Welford** [3,A], **Clare E. Bond** [4,B], **Graeme Eagles** [5,A], **David Fernández-Blanco** [6,B], **Janine Kavanagh** [7,A], **Dave McCarthy**[8,B], **Andrew J. Parsons** [9,A], **Lucía Pérez-Díaz** [10,B], **Roxana Stanca** [11,B]

[A]Tektonika Executive Editor Team | [B]Tektonika Core Team | [1]Université Paris Cité, Institut de physique du globe de Paris, CNRS, Paris, France | [2]School of Earth, Environment, and Sustainability, University of Leeds, Leeds, UK | [3]Department of Earth Sciences, Memorial University of Newfoundland, Canada | [4]School of Geosciences, Aberdeen University, Aberdeen, UK | [5]Alfred Wegener Institute, Am Alten Hafen 26, 27568 Bremerhaven, Germany | [6]State Key Laboratory of Deep-Sea Science and Intelligent Technology, Institute of Deep-Sea Science and Engineering, Chinese Academy of Sciences, Jiyang District, Sanya, Hainan, China | [7]School of Environmental Sciences, University of Liverpool, UK | [8]British Geological Survey, Edinburgh, UK | [9]School of Geography, Earth and Environmental Sciences, University of Plymouth, Plymouth, UK | [10]Halliburton, UK | [11]Gavin Doherty Geosolutions (GDG), UK

Introduction

Artificial intelligence (AI), mostly in the form of chatbots based on large language models (LLM), now permeates society at large, whether for positive, negative, trivial or even toxic purposes. AI is also increasingly used in various aspects of scientific research, from large-scale data analysis to manuscript preparation. At Tektonika, the Executive Editor's group and the Core members engaged in discussions while drafting our guidelines on the use of AI[1]. These exchanges revealed a divide between those who see AI as bringing significant positive contributions and those who are more skeptical, fearing a loss of expertise and a decline in cognitive skills (e.g., *Macnamara et al.*, 2024). Some of the key questions that emerged about the benefits of AI are: Do we accept or even encourage the use of AI? At what stages of the research process? What is acceptable or not for manuscript preparation or reviewing? Conversely, several challenges were also identified prompting questions such as: do we just see the use of AI as inevitable, placing us on a damage-limitation exercise? Are we concerned about laziness in research and writing, about false information? Are we able to discern whether or not a manuscript is AI-generated, partially or totally?

All these questions are important and deserve careful consideration and lengthy discussions. In fact, they are already the subject of numerous published papers (e.g., *Clark*, 2025; *Hosseini et al.*, 2024; *Kwon*, 2025; *Messeri and Crockett*, 2024; *Salvagno et al.*, 2023). A key insight is the necessity for an academic journal to establish clear guidelines to help people use AI tools in a way that does not compromise science. In this editorial, we first explain our guidelines about the use of AI[2], then we outline the varied opinions and responses to some of these questions within the Executive Editor's group and the Core members. First and foremost, let us emphasize the most crucial shared view: we will not allow the limited uses of AI we now accept to undermine our ethical and professional standards, nor our strong requirements for transparency, integrity, and open science. Our guidelines were established with this principle in mind.

Tektonika Guidelines About AI Explained

Before explaining our guidelines in detail, we must underscore that all results produced with the help of various AI tools are ultimately the responsibility of those submitting articles for review. In other words, if it was produced by AI, it is the authors' obligation to carefully review the results, in order to ensure their accuracy and validity. Authors must also pay attention to possible copyright or authorship issues, for example when analysing datasets from external sources with AI tools, or using such tools to synthetise scientific literature. These general principles are broken down below according to the different types of usage.

*✉ lacassin@ipgp.fr

[1]https://tektonika.online/index.php/home/AI_Guidelines

[2]The section that follows does not constitute our formal guidelines. For our official policy, the reader should refer to https://tektonika.online/index.php/home/AI_Guidelines

Use of AI in the Research Process

Machine learning, deep learning and other forms of AI are increasingly used in the research process. They are widely used to analyze and process large datasets, identify patterns, and facilitate comparative studies. Similarly, AI-based approaches are increasingly adopted in research based on image analysis. These are non-exhaustive examples. We consider uses to process, analyse, and model data integral to the research process itself. Our guidelines thus stipulate that:

The use of any form of AI in the research process, with tools developed by the authors or publicly available, must be acknowledged. In general, the correct place to do that is in the methods section of a manuscript. This section must include a clear explanation of how AI was integrated into the research process (e.g., data analysis, modeling, code generation, image manipulation or other applications). Authors must justify their use of AI, explaining why it was necessary or beneficial. They must verify and confirm that AI tools do not introduce biases or errors into the research.

In addition to the AI-use explanation in the methods section, the Data Availability section at the end of the manuscript should provide links or references to the AI tools used. This should aim to ensure reproducibility of the study, validation of the scientific method, and transparency.

Use of Generative AI in Manuscript Preparation

Following recent developments in generative AI, particularly large language models (LLM) like ChatGPT, Claude, Gemini, or specialized tools like Elicit, Paperpal or NotebookLM, there have been numerous proposals arguing that "Artificial Intelligence may help scientific writing" (e.g., *Heidt*, 2025; *Kacena et al.*, 2024; *Salvagno et al.*, 2023; *Shabanov*, 2024). Although generative AI may indeed be efficient in assisting authors in writing and editing, authors risk losing control over the content and scientific reasoning presented in their article. To mitigate these risks, the use of generative AI must be confined to clearly defined stages of the publication process and follow strict ethical guidelines. In adherence with these principles, we have developed our own guidelines and explain them below. Readers seeking to explore the question in more details may refer to the very complete guidelines issued by The Association of Scientific, Technical & Medical Publishers (STM) (Ethical and Practical Guidelines for the Use of Generative AI in the Publication Process, STM 2023)[3]. A 2025 update[4] summarizes these guidelines and includes a useful table.

The first important rule is transparency. Authors must disclose and justify any use of AI tools in the cover letter to the editor and in the AI Use Statement section at the end of the manuscript.

The only exception is when the authors write their own text then use AI tools to improve spelling, grammar, or general language clarity. This limited use supports inclusivity, particularly for non-native English writers. In this case, disclosure is not mandatory. If they wish, the authors may acknowledge the use of AI tools in their cover letter and the AI Use Statement section.

Let us now consider more extensive use of AI during manuscript drafting. Authors may turn to AI to draft entire paragraphs based on key sentences, lists of bullet points, or loosely organized notes. Such use constitutes AI-generated manuscript text. We believe that such practices significantly increase the risk of losing control over the scientific content. If AI is used in this way, authors are required to justify doing so in their cover letter. Authors must carefully review and edit all generated content. They should consider such content as guidance and rewrite their own text based on it. They must fully disclose AI assistance in their cover letter, specifying the process, prompts, and tools employed, and acknowledge it in the "AI Use Statement" section to ensure transparency.

In the two cases above, it is important to note that AI use is only safe and beneficial if the authors have sufficient proficiency in English to evaluate, validate, and rewrite the suggestions generated by AI tools. Should this not be the case, we recommend review by a third-party proficient English speaker as a safeguard. Authors should however be aware that such reviewing by an English-language editor can be beneficial for the grammar, but that risk may persist for the scientific content.

Authors might consider using general LLMs or more specialized tools to curate, summarize, or synthesize scientific literature, and then using the outputs in their manuscripts, particularly in the literature review or state-of-the-art sections. Authors must carefully check the sources suggested by AI, and, as should be obvious, critically read and evaluate any literature suggested by the AI tools. Indeed this practice carries significant threats, as it may compromise the authors' ability to ensure the relevance, completeness and nuanced interpretation of the cited literature. Authors should be aware that generative AI may fabricate citations that are entirely fictitious (e.g., *Walters and Wilder*, 2023), while appearing plausible and closely resembling legitimate references. They should also be vigilant about plagiarism issues when using AI tools in this way, for these tools often derive exact passages from the original sources. Any such use must be thoroughly explained and acknowledged in the cover letter and AI Use Statement section.

Authors may also be tempted to employ AI tools to generate images and figures in their manuscripts. We consider that generative AI may only be used in a limited capacity for creating or editing images and diagrams strictly for illustrative or aesthetic purposes. Authors

[3] https://stm-assoc.org/document/stm-generative-ai-paper-2023/

[4] https://stm-assoc.org/new-stm-draft-report-classifying-ai-use-in-manuscript-preparation/

must clearly disclose and justify this use, and a statement about AI usage must be added in the figure caption. Any other use of AI tools to process, analyze, and then visually represent data is considered part of the research process. As such, it must be rigorously justified and clearly explained in the methods section and follow the rules detailed above in the chapter "Use of AI in the research process".

Our guidelines finally state that, in general, all other applications of AI are prohibited. If uncertain, authors must approach the editors and fully disclose and justify possible use. Importantly, if our editors suspect undisclosed or prohibited AI use, authors may be asked to justify their process, or the manuscript may be rejected. The editors reserve the right to reject submissions and eventually withdraw published manuscripts if AI use violates ethical or professional standards, or does not follow the above guidelines and procedures.

Use of Generative AI in Manuscript Review

Reviewers are strictly prohibited from using any online AI tools to summarize or evaluate submitted manuscripts. Indeed a critical point in the review process is to uphold the manuscript's confidentiality and respect the authorship rights. Uploading a manuscript, or part of it, to third-party systems (LLMs or more specialized tools) risks exposing the content to unauthorized reuse for AI training purposes. This poses a serious threat of future plagiarism and theft of ideas. This is why such use is not allowed for reviewers.

Reviewers, in particular non-native English writers, may also be tempted to use AI to improve their written review reports. Only minimal AI assistance, such as basic spelling or grammar check, is deontologically acceptable. Any broader use of AI, such as refining arguments or enhancing reasoning, risks distorting the reviewer's opinion and substituting it with the AI's output. This may also compromise the confidentiality of the results and ideas presented in the submitted manuscript. Such use is thus not allowed.

Varied Opinions, the Pros and the Cons About the Use of AI

The following contributions offer a diverse range of opinions and perspectives from Tektonika's Executive Editors and Core team members on the opportunities and challenges of AI in scholarly work.

Kim Welford (Editorial Team)

The use of AI is controversial. When using it to speed up a task that the user already understands (for instance when writing code), it can be very powerful, leaving more time for the user to do other things. As a writing tool, particularly for non-native speakers, I think it can also be very helpful, as long as the user takes the time to digest how the AI tool has "optimized" their writing so that they can write things better themselves going forward. The danger lies in blindly relying on these tools. In those instances, it is no different than a student asking another student to do their work. The one asking the question may get a passing grade for the assignment but they have learned nothing. Its overuse can also backfire when one is trying to build a publishing career. AI tools are trained on past works so they are a poor source and substitute for innovation and creativity. I honestly believe that true long-term success in scientific research and science communication can only be achieved by doing things yourself, the good old fashioned "hard way".

Tony Doré (Editorial Team)

As the most senior (in age) of the Tektonika team, it might seem predictable that I take the most reactionary view about AI. But as a scientist, I like to think that my reasoning is objective, and that my concerns are founded on facts. Although I have little background in AI, I am fortunate to have accomplished mathematicians in my immediate family, who work closely with related subjects. They are even more concerned about the future impact of AI than I am, which tells me something.

I agree with my Tektonika colleagues about the inevitability of AI. Like the atom bomb, it cannot be "un-invented", and we have to live with it whether or not we think it is a good thing. The guidelines summarized in this editorial are sensible and timely, and in accordance with what other journals are implementing. My concern is how to police AI usage; methods to detect inappropriate AI contributions (i.e. those that do not meet our guidelines) are in their infancy, and may well be outpaced by the AI itself.

There is an argument that AI is merely a tool to do the "heavy lifting". I think we can all agree that the use of AI to enable non-English speakers to write better manuscripts is beneficial, as is using machine learning to process vast data sets and see patterns in them. Unfortunately, its use has already gone way beyond that. Accounts from colleagues of students using AI to write entire masters' theses, with the acquiescence of their institution, may be apocryphal – but I suspect not. Allowing AI to do the "grunt work", thus making time for more pure research, is fine in theory. In practice, having lived through several technological revolutions, I have seen no evidence that they actually result in elevated levels of thought and better science - just fewer jobs. Additionally, less scrupulous operators will let the AI actually do the research, organize the data, and provide the chain of reasoning. And, if people do not need to write properly, organize their thoughts effectively, or learn to interpret data, those skills will atrophy.

The wider societal concerns around AI are rather obvious. The replacement of scientists and scientific jobs because of AI is probably inevitable. Examples of intrusion by AI into artistic pursuits such as drama and music are constantly surfacing in the media, as are concerns over false information ("hallucinations"), most notably fictitious legal precedents (see for example *Holweg et al.*, 2023; *Smith*, 2025). There are also

legitimate concerns about AI "rewriting history" by deliberately corrupting or biasing online databases, emphasizing the need to keep the essentials of our scientific legacy out of AI's reach.

All of these factors are outside of Tektonika's sphere of influence, although their relevance to us is clear. I trust the honesty and integrity of most of Tektonika's contributors. Even so, our challenge is to consistently update our guidelines as AI becomes cleverer, to rigorously police them, and to implement advances in AI detection as they become available.

Craig Magee (Editorial Team)

AI is here to stay. There are clear advantages and disadvantages that AI offers to us as scientists that are nicely outlined by my colleagues above: AI can significantly aid non-native English speakers develop their writing skills and increase the accessibility of their science, but conversely when used indiscriminately it can erode the scientific process and integrity of findings. For me, the key benefit of AI that outweighs its problems lies in its potential to save time. Time is a finite and valuable resource. At least within universities in the UK, and internationally as I hear from colleagues, there is a growing burden of administrative duties academics are expected to complete. Furthermore, many universities are reducing staff numbers, shifting workload to those who remain. Yes, we should be teaching alongside our research and need to be involved in managerial roles, etc, but the excessive workloads many are under are straining their mental and physical health, sometimes unfortunately to the breaking point. This is clearly not sustainable but there is no end in sight. The only light at the end of the tunnel I can see is the potential for AI to save time. With the proper use of AI we can continue and advance our research, learn and teach more efficiently, and (hopefully) pass on mundane jobs that seemingly only make work for work's sake. Of course, critical to this sentiment is "proper use". Awareness and training in how to properly, safely, and securely apply AI whilst maintaining academic integrity is crucial. I fully agree that this is an area of concern with AI and why we at Tektonika have decided to produce guidelines that we require authors and reviewers to adhere to, and to accurately and honestly report their usage of. AI is here to stay, though, and hopefully we can all help each other to maximise its potential in saving us all time, whilst enhancing our research.

Mohamed Gouiza (Core Team)

AI, much like the Internet before it, is making a pivotal change in how we access, interact, and generate knowledge. It is not a passing trend, but it is here to stay (or even take over the world as some think!). We can either embrace it and maximise its benefits, or dwell on its risks and imperfections. Personally, I see AI as a powerful enabler. As someone without formal training in coding but with over a decade of experience using Python in my research, I have found AI tools to be incredibly empowering. They have enabled me to write more advanced scripts, explore methods I would have previously only dreamed of implementing, and, most importantly, save valuable time. This has not only made my work more efficient but has broadened my own research. Thus, I believe researchers should be free to use AI in ways that best serve their research goals, whether in writing, data analysis, coding, or conceptual exploration. But with this freedom comes the responsibility of being transparent. We must be clear about when, where, and how AI was used in order to maintain trust and ensure reproducibility. At the end of the day, AI is just a tool (for now, before it takes over the world), a powerful one, and its value depends on the hands that wield it.

Robin Lacassin (Editorial Team)

As a non-native English writer, I sometimes employ AI tools to enhance the clarity, vocabulary, and syntax of my texts. Submitting draft sentences to an AI chatbot and requesting improvements in academic style has proven to be a significant help. Indeed, I must acknowledge that I used this approach to refine certain passages in the drafting of Chapter "Tectonika guidelines about AI explained" of this editorial. However, I do not accept AI-generated suggestions uncritically. Given enough proficiency in English, I treat these outputs as suggestions to improve my own texts. This is an example of what our guidelines describe as "limited use". So long as authors maintain strict oversight over the use of AI and its outputs, this approach can yield significant time savings, as previously noted by my colleagues, while also enhancing the clarity of manuscripts.

However, I am deeply concerned about the open and unrestricted access to AI tools. While generalist chatbots currently offer a range of functionalities free of charge, there is no assurance that this will remain the case in the future. I observe that the use of specialized tools, particularly those designed for deep search of scientific literature and its exploration, often requires a subscription to unlock their full potential. From the perspective of inclusivity and open science, this could pose significant challenges, potentially restricting access to these tools for scientific communities with limited financial resources.

I also remain partially skeptical about the argument that AI will save researchers time. The critical question here is: "Yes, but to what end?". If using AI to draft manuscripts or perform other scientific tasks further inflates the already overwhelming volume of literature and exacerbates the "publish or perish" culture, we will gain little. I think that ensuring the high quality of scientific output and dissemination requires time, in line with the suggestions of the Slow Science Manifesto (e.g., *Frith*, 2020). In other words, the challenge is to use AI to make better science, not simply to generate more output.

The final concern I will briefly mention is the environmental cost of developing and deploying large AI models. Numerous studies highlight their unsustainable demand for rare minerals and energy consumption. Responsible science cannot overlook this critical issue.

Conclusion

To conclude, let us emphasize the two points that we consider most important:

(1) Except in a few specific cases, all use of AI by authors must be declared, and justified, and must follow the rules detailed in our guidelines.

(2) Another crucial point concerns the use of AI by reviewers: to maintain a high level of confidentiality and respect authorship, the rules for reviewers are much stricter than those for authors. In particular, uploading any part of a submitted manuscript, and asking an online AI tool to help commenting on it, is strictly forbidden.

As AI is evolving very quickly, it is likely that the guidelines we have explained above will be revised regularly. We hope they will be a valuable help for our authors to produce excellent science. Let us not be naive, however. Detecting AI-generated contributions in manuscripts is, and will continue to be difficult. Compliance with the guidelines outlined above therefore relies heavily on the integrity, transparency and commitment of our contributors. We hope that all together we will maintain the highest deontological standards in the spirit of open and free science.

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Copyright notice

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